In the Office Action, claims 1-9 are rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,048,946 to Sklar et al. in view of U.S. Patent No. 5,980,513 to Frey et al. This rejection is respectfully traversed.

The claims are amended to clarify the invention. The invention is directed to a laser treatment apparatus that has increased focusing accuracy. The invention also better facilitates the observation of an inside of a patient's eye. In this system, a treatment laser beam from YAG laser 10 is focused on an inside of a patient's eye at an affected part. Aiming beam means, such as dual beams from laser source 18, are also delivered into the patient's eye and reflected at a desired point, such as a treatment area in a posterior capsule of the eye (rear inside portion of the eye). See col. 10, lines 21-25 and Fig. 4. The reflected light is captured by an image pickup means, such as CCD 26 and viewed on display 5. Detection means, such as image processing section 31 then is able to determine a coincident (overlapping) state of the two reflected images which form spot images. From this, a sighting state with respect to the affected part of the eye interior can be determined and movement of the sighting point can be guided from the display by a movement control means such as joystick 4 to adjust the beams for maximum coincidence. See page 10, line 26 to page 14, line 8.

Sklar is directed to an ophthalmic apparatus 10 that irradiates an eye to be examined with an illuminating light beam from illuminator A having a specified, emphasized spectral portion. The apparatus then divides the illuminating light beam reflected from the eye (beam 24) to detect the spectrum and obtain plural examination results from the single light beam by making use of a different spectral range of light for each detecting device. While the reference light may be used as an aiming beam, the primary concern with Sklar is not in aiming of a laser, but in allowing multiple devices access to the reflected light. However, the disclosed illuminating light beam is used as an aiming beam based on a corneal reflected image. Therefore, the treatment by the laser is limited to eye treatment for only those parts of

an eye with a fixed positional relationship with respect to the corneal surface. Sklar does not teach or suggest focusing on an effected part inside of the eye as claimed.

Frey merely discloses a laser beam delivery and eye tracking system. It is characterized in that a particular projecting optical system detects an iris boundary existing at about a half radius of curvature from a corneal vertex. Accordingly, as with Sklar, Frey is not concerned with and does not teach or disclose the features of the invention that enhance focusing accuracy of an apparatus that treats an affected part on the inside of a patient's eye and does not allow an operator to observe the inside of the eye through an observation optical system having a relatively deep focal depth.

As such, even if combined, the combination fails to teach or suggest the subject matter of independent claim 1. The combination also fails to teach or suggest a display that displays "a determination result by the determination means" as recited in claim 3. The combination also fails to teach or suggest a display that displays "a direction in which the sighting point is to be moved...based on the determination result" as recited in claim 4. Further, the combination fails to teach or suggest that the second irradiation optical system includes an optical system for delivering "a plurality of aiming beams which are symmetrical about an optical axis into the patient's eye so that the aiming beams coincide at a focus point" and determination means that "determines the sighting state based on at least one of an overlapping condition of the spot images...and a size of the overlapped spot images" as recited in claim 8 or "determines the sighting state based on at a spot diameter or a size of the spot image of the aiming beam" as recited in claim 9.

Withdrawal of the rejection is respectfully requested.

In the Office Action, claim 10 is rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,048,946 to Sklar et al. and U.S. Patent No. 5,980,513 to Frey et al., further in view of U.S. Patent No. 4,907,586 to Bille et al. This rejection is respectfully traversed.

Sklar and Frey are discussed above. Bille is relied upon solely for use of a YAG laser. Bille fails to overcome the deficiencies of Sklar and Frey with respect to independent claim 1. As such, claim 10 is deemed allowable for its dependence on claim 1 and for the additional features recited therein.

Withdrawal of the rejection is respectfully requested.

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-10 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

Stephen P. Catlin
Registration No. 36,101

JAO:SPC/can

Date: September 9, 2002

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461

APPENDIX

The following is a marked-up version of the amended claims:

1. (Amended) A laser treatment apparatus for irradiating an affected part in the inside of a patient's eye with a treatment laser beam to treat the affected part, while allowing an operator to observe the affected part, including:

treatment beam irradiation means including a first irradiation optical system for ~~irradiating~~ focusing the treatment laser beam on the inside of the patient's eye;

aiming beam irradiation means including a second irradiation optical system for ~~irradiating~~ delivering an aiming beam into the patient's eye, ~~the second irradiation optical system being optically adjusted such that sighting of the treatment beam is completed when the aiming beam forms a predetermined shape on a reflection plane~~

the first irradiation optical system and the second irradiation optical system being optically adjusted such that sighting of the treatment laser beam in a direction of an optical axis with respect to the affected part is completed when the aiming beam forms a predetermined shape in the inside of the patient's eye;

image pickup means including an image pickup optical system for imaging an area including the affected part in the inside of the patient's eye;

~~sighting~~ detection means for ~~processing an image of the aiming beam~~detecting a spot image of the aiming beam from an image picked-up by the image pickup means ~~to detect a sighting state~~;

~~movement detection means for detecting movement in an optical axis direction of at least one of at least a part of the image pickup optical system and at least a part of the irradiation optical system;~~ and

determining means for determining ~~a direction in which at least one of at least the part of the image pickup optical system and at least the part of the irradiation optical~~

~~system is to be moved~~a sighting state in the optical axis direction with respect to the affected part based on ~~results~~ a result detected by the ~~sighting~~ detection means ~~and the movement detection means respectively~~.

2. (Amended) The laser treatment apparatus according to claim 1 further including observation means including a display for displaying ~~an~~ the image picked up by the image pickup means on the display.

3. (Amended) The laser treatment apparatus according to claim 2 further including display control means for causing the display to display ~~that the sighting state is proper based on the result detected by the sighting detection means~~a determination result by the determination means.

4. (Amended) The laser treatment apparatus according to claim 2 further including ~~detecting movement in an optical axis direction of at least one of at least a part of the image pickup optical system and at least a part of the irradiation optical system~~movement means for moving a sighting point in the optical axis direction with respect to the affected part; and

display control means for causing the display to display ~~the~~ a direction in which ~~at least one of at least the parts of the image pickup optical system and the irradiation optical system are~~the sighting point is to be moved by the movement means based on the determination result ~~detected~~ by the determination means.

6. (Amended) The laser treatment apparatus according to claim 1 further including movement means for ~~automatically moving at least one of at least the part of the image pickup optical system and at least the part of the irradiation optical system based on the result detected by the determination means~~moving a sighting point in the optical axis direction with respect to the affected part; and

movement control means for controlling the movement means based on the determination result by the determination means.

7. (Amended) The laser treatment apparatus according to claim 1, further including:

movement means for ~~automatically moving at least one of at least the part of the image pickup optical system and at least the part of the irradiation optical system~~moving a sighting point in the optical axis direction with respect to the affected part; and

movement control means for controlling the movement means ~~to move at least one of at least the part of the image pickup optical system and at least the part of the irradiation optical system by a predetermined amount in a predetermined direction~~ based on an instruction to start automatic sighting.

8. (Amended) The laser treatment apparatus according to claim 1, wherein ~~the aiming beam irradiation means irradiates~~the second irradiation optical system includes an optical system for delivering a plurality of aiming beams which are symmetrical about an optical axis into the patient's eye so that the aiming beams ~~to~~ coincide with each other at a focus point of the treatment laser beam, and the ~~sighting detection means detects~~determination means determines the sighting state based on at least one of an overlapping condition of the images of the plurality of aiming beams and a size of overlapped spot images.

9. (Amended) The laser treatment apparatus according to claim 1, wherein ~~the aiming beam irradiation means irradiates~~the second irradiation optical system includes an optical system for delivering the aiming beam ~~to focus~~into the patient's eye so that the aiming beam focuses on a focus point of the treatment laser beam, and the ~~sighting detection means detects~~determination means determines the sighting state based on one of a spot diameter and a size of the spot image of the aiming beam.